

REMARKS

By the present amendment, Claims 5-8 have been canceled. Claims 1-4 and 9-13 remain pending in the application, with Claims 1 and 11 being independent claims. Claims 5-8 are rejected under 35 U.S.C. § 112, first paragraph, for lack of support in the specification. Claims 1-4 and 9-13 are rejected under 35 U.S.C. § 103(a), as allegedly being unpatentable over Mody (U.S. Patent Application Publication No. 2003/0072452 A1). The cancellation of Claims 5-8 render these rejections moot with respect to these particular claims.

The Examiner concedes that Mody does not disclose that transformation has been performed by using an Inverse Fast Fourier Transform (IFFT) block, and that Mody also differs with the present invention regarding the preamble sequence. The Examiner states that these differences are well known in the art and/or a matter of design choice. The Examiner asserts that it would have been obvious at the time the invention was made to modify Mody in accordance with the present invention.

Independent Claim 1 recites, in part, a method to generate a preamble sequence in an orthogonal frequency division multiplexing (OFDM) communication system having a plurality of subcarriers actually in use and identified by unique numbers in a frequency domain, the method comprising the steps of:

generating a first short preamble sequence with elements corresponding to the plurality of subcarriers, wherein data other than null data is inserted for elements associated with a subcarrier identified by a unique number that is an even number;

generating a second short preamble sequence with elements corresponding to the plurality of subcarriers, wherein data other than null data is inserted for elements associated with a subcarrier identified by a unique number that is an odd number; and

generating a preamble sequence in a time domain by transforming one of the first and second short preamble sequences according to a transmission rule by using an inverse Fast Fourier transform. Independent Claim 11 includes similar recitations.

The Examiner relies on FIG. 3 and paragraphs 12, 13, 61, 66, 67 and 81-84 of Mody for disclosing substantially all of the features of the present invention.

In particular, the Examiner relies on paragraphs 66 and 81 of Mody for disclosing the recitation “generating a first short preamble sequence with elements corresponding to the plurality of subcarriers, wherein data other than null data is inserted for elements associated with a subcarrier identified by a unique number that is an even number”.

Paragraph 66 of Mody merely discloses that a short sequence that includes periodically repeating patterns with good correlation properties is used as enhanced training symbols and that the patterns provide a peak output indicating a synchronization. Paragraph 81 of Mody discloses that an enhanced training symbol is used in the MIMO system to be orthogonal with different antennas and that the sequence transmitted from antenna 1 has only its even sub-carriers.

Although paragraph 81 of Mody discloses the expression of “even sub-carriers”, Applicants respectfully submit that the “even sub-carriers” of Mody are different from the “subcarrier identified by a unique number that is an even number” recited in Claims 1 and 11 of the present invention. That is, the even subcarriers of Claims 1 and 11 are subcarriers wherein data other than null data is inserted among a first short preamble sequence with elements. Meanwhile, paragraph 81 of Mody discloses that the even sub-carriers that map the preamble sequence are transmitted through antenna 1. Therefore, the even sub-carriers disclosed in paragraph 81 of Mody map all of the elements that the sequence comprises irrespective of null data or data other than null data, unlike Claims 1 and 11 of the present invention. Therefore, Applicants respectfully submit that the even sub-carriers disclosed in paragraph 81 of Mody differ from the “subcarrier identified by a unique number that is an even number” recited in Claims 1 and 11 of the present invention.

The Examiner relies on Paragraph 83 of Mody for disclosing the recitation “generating a second short preamble sequence with elements corresponding to the plurality of subcarriers,

wherein data other than null data is inserted for elements associated with a subcarrier identified by a unique number that is an odd number”. Paragraph 83 of Mody discloses that the sequence used for antenna 2 is the same as the one used for antenna 1 except that its odd sub-carriers are excited rather than its even sub-carriers.

As described above with respect to paragraph 81 of Mody, even though paragraph 83 of Mody discloses the expression “odd sub-carriers”, the odd sub-carriers described by Mody are different from the “subcarrier identified by a unique number that is an odd number” recited in Claims 1 and 11 of the present invention. That is, the odd subcarriers recited in Claims 1 and 11 of the present invention are subcarriers that data other than null data among the elements that the second short preamble sequence comprises. The odd sub-carriers disclosed in paragraph 83 of Mody are sub-carriers that map the preamble sequence transmitted through antenna 2. Therefore, the odd sub-carriers disclosed in paragraph 83 of Mody maps all the elements that the sequence comprises irrespective of null data or data other than null data, unlike Claims 1 and 11 of the present invention. Therefore, Applicants respectfully submit that the odd sub-carriers disclosed in paragraph 83 of Mody differ from subcarriers identified by a unique number that is an odd number recited in Claims 1 and 11 of the present invention.

The Examiner relies on block 52 of FIG. 3 of Mody for disclosing the recitation “generating a preamble sequence in a time domain by transforming one of the first and second short preamble sequences according to a transmission rule by using an inverse Fast Fourier transform”. Block 52 of FIG. 3 of Mody merely discloses a conventional Inverse Discrete Fourier Transform (IDFT) that simply converts from the frequency domain to the time domain. Block 52 of FIG. 3 of Mody fails to disclose the feature of generating a preamble sequence by transforming one of the first and second short preamble sequences according to a transmission rule by using an IFFT as disclosed in Claims 1 and 11 of the present invention.

While IFFT, according to the Examiner, may be well known in the art, Applicants respectfully submit that it is not well known in the art for the feature of transforming one of the

first and the second short preamble sequences to generate a preamble sequence according to a transmission rule by using an IFFT, as recited in Claims 1 and 11 of the present invention. Therefore, the above-described assertions by the Examiner are not reasonable.

Accordingly, independent Claims 1 and 11 are allowable over Mody.

While not conceding the patentability of the dependent claims, *per se*, Claims 2-4, 9, 10, 12 and 13 are also allowable for at least the above reasons.

Accordingly, all of the claims pending in the Application, namely, Claims 1-4 and 9-13, are in condition for allowance. Should the Examiner believe that a telephone conference or personal interview would facilitate resolution of any remaining matters, the Examiner may contact Applicants' attorney at the number given below.

Respectfully submitted,



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